53 pt. 20

University of California College of Agriculture Agricultural Experiment Station

SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

MADERA COUNTY

Progress Report No. 20

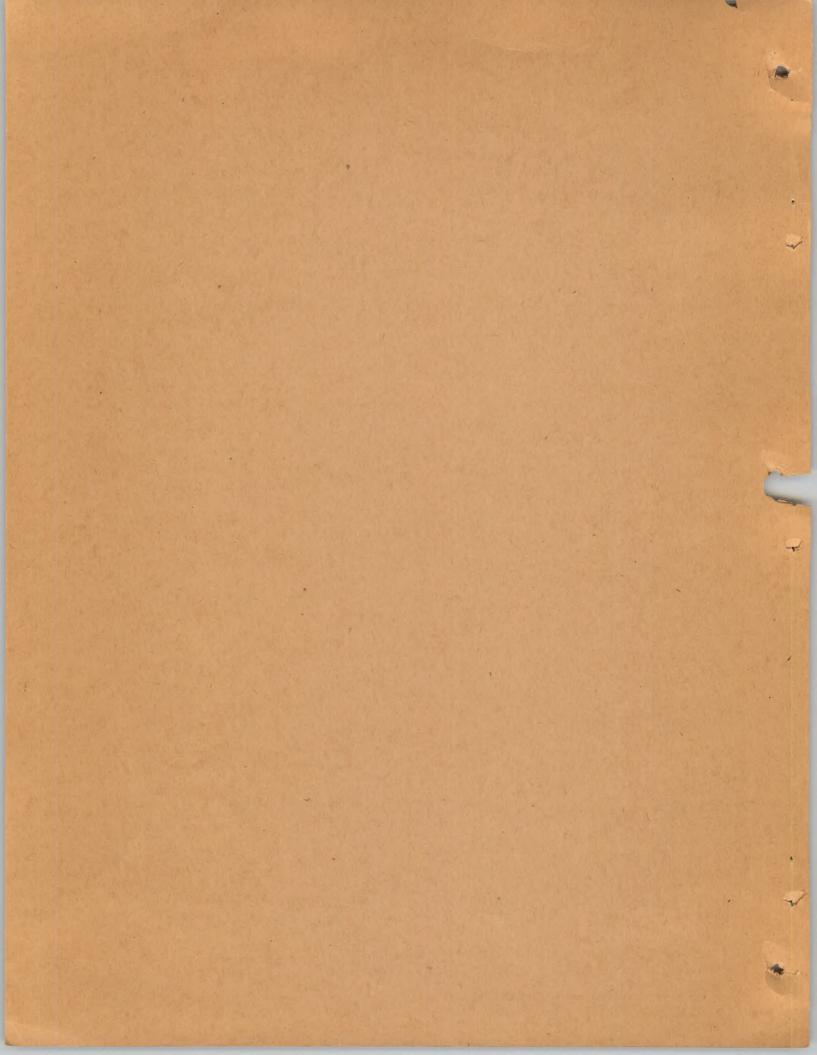
by

R. L. Adams

Preliminary -- Subject to Correction

February, 1937

Contribution from the Giannini Foundation of Agricultural Economics Mimeographed Report No. 53



(Farm Labor Survey -- July-December, 1936)

Progress Report No. 20

Seasonal Labor Needs for California Crops

Madera County

Scope of Presentation .-- The following considerations govern the presentation of this progress report:

- 1. The data are confined to the area indicated above.
- 2. The data are confined solely to crops, livestock needs being ignored.
- 3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.
- 4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including teamsters, tractor drivers, irrigators, and shed packers of vegetables or fruits.
- 5. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.
- 6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Crops, Acreages, and Production .-- The basis used in calculating occasional or seasonal need for labor, other than that furnished by farm operators and regularly employed workers, appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements

Madera County

Crop	Acreage	Production
Field crops: Alfalfa Beans* Cotton Grain barley oats wheat Grain hay* Onions and garlic* Potatoes* Sorghums for grain	5,095 40 24,300 72,580 320 24,300 700 40 90 760	30,570 tons 30 tons 25,513 bales † 54,430 tons 160 tons 6,075 tons 700 tons 300 tons 560 tons 570 tons

Program Report No. 20

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- to The presentation includes the so-called migratory, translast, or rowing workers witch comprise an important source of help needed in connection with cortain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.
- This report is confined to California's need for seasonal arricultural workers because of the more presents problems liable to arise in openion there is not the more present which will don't with opher kinds of labor intervention the production of California's party orops.
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TABLE 1

Basis for Calculating Seasonal Lebon Requirements

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Table 1 continued.		Production 2.
Crop	Acreage	Production
Vegetable and truck crops: Lettuce* Melons cantaloupes* miscellaneous* Tomatoes*	20 70 80 120	2,500 crates 10,500 crates 57,600 melons 1,200 tons
Fruit and nut crops: Almonds Apples* Apricots Figs Grapes raisin varieties	295 81 953 1,279 \$	47 tons 267 tons 250 tons (dry weight) dried # 100 tons (dry weight) dried
Thompson Muscat Sultana Zante miscellaneous table varieties Malaga miscellaneous wine varieties Nectarines Olives Peaches clingstones freestones Plums Prunes* Walnuts*	10,419 1,163 326 203 17 585 53 3,001 85 502 516 818 206 37 11	4,260 tons raisins (dry weight) 1,500 tons wine varieties shipped 580 tons table varieties shipped 52,150 tons to wineries 20 tons (dry weight) dried 473 tons for canning) 69 tons not for canning) 3,100 tons (fresh weight) 4,000 tons (fresh weight) 618 tons

* Acreage or production small -- Use of seasonal labor inconsequential and hence ignored.

+ Data from California Cooperative Crop Reporting Service. Final California cotton report for the 1935 crop. Sacramento, May 26, 1936 - 1p.

≠ Drying ratios:Apricots - 5½ to 1Peaches - 5½ to 1

Raisins - 4 to 1

Includes: - 838 acres Calimyrna

Adriatic - 314 acres miscellaneous - 126 acres

9 Olive production is an estimaté by California Olive Association for 1935 Crop.

Operations Requiring Seasonal Labor and Times of Need .-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in Madera County are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

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	2,800 brates 10,500 brates 57,800 melons 1,200 tens	200 200 300 300	Vegetable and truck crops: Lettuces Melone cantaloupese miscellaneouss Tomatoese
	47 tons 267 tons 250 tons (dry weight	295 81 958 1,279 ¢	Fruit and nut props: Almonds Apples: Apricots Figs
dried shipped	4,250 tone rateine (1,500 tone table varie 580 tone table varie 82,150 tone to winer 20 tone (dry weight)	10,419 1,165 100,6 17 208 88 6,001 88 808	Grupes relain varieties Thompson Iduacat Sultana Zante miscollaneous table varieties miscellaneous wino varieties Modarines Wino varieties
(drint)	69 tons not for sam 5,100 tons (fresh we 4,000 tons (fresh we 618 tons	516 818 206 37	Fractions climationes Frame Francs* Walnuts*

* Adresce or production small -- Use of sectional labor thousequential and

+ Data from California Copperative Crop Reporting Service section report for the 1988 erop. Scaraments, Nay 28, 1988 - 1p.

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| Includes: Oslingina | 2 858 adres | Adriatio | 314 acros | Adriatio | 126 acros | 126 acros |

of Olive production is an estimate by California Olive Association for 1935

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TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops

Madera County

Crop	Operation	Time of need	Per cent of work done by	Output per
			seasonal help	
1000			Todabolisti itoʻip	man-day
Field crops:				
Alfalfa	Mowing (5 cut-	April 20-30 30 per cent of		8 acres
	tings)	acreage		
	Raking	May 1-31 90 per cent of	1	16 acres
	Shocking by	acreage		6.5 acres
	hand	June 1-30 90 per cent of		
		acreage		
		July 1-31 90 per cent of acreage	> 50	
		August two-thirds of acreage		
		September two-thirds of		
		acreage		
The state of the s		October two-thirds of acre-		
		age	!	
A PROPERTY OF THE PARTY OF THE	Stacking (two-	May 20 per cent of job		
	thirds of	June 20 per cent of job		
	crop)	July 20 per cent of job	60	3.5 tons
		August 13 per cent of job	("	o.o cons
		September 13 per cent of job		
	Poline (one	October 13 per cent of job	<	Stall Francis
	Baling (one- third of crop)	May 20 per cent of job		
	onitia of crop)	June 20 per cent of job July 20 per cent of job		
		August 13 per cent of job	> 50	5.0 tons
		September 13 per cent of job		
		October 13 per cent of job		
Cotton	Chopping	May two-thirds of job	7	
		June one-third of job	3 100	2.5 acres
	Weeding (hoe-	June 1-30 50 per cent of)	
	ing)	acreage	100	70
		July 1-31 50 per cent of	100	10 acres
	Tunimatina	acreage	5	
	Irrigating 4 times	July one-third of job	50	-
•	T OTHOS	August one-third of job September one-third of job	50	5 acres
	Picking*	September 15-30 2.2 per cent	5	
-48 3 3 3		of crop		
THE STATE OF THE		October 1-31 36.3 per cent		250 pounds
		of crop	100	seed cot-
	CHIEF THE STATE OF	November 1-30 34.9 per cent		ton
		of crop	!	
		December 1-31 12.0 per cent		
		of crop January 1-31 9.6 per cent of		200 pounds
		crop	100	seed cot-
		February 1-28 5.0 per cent		ton
		of crop		THE STATE OF THE S
The Allendaria	4			
		Table	continued on	next page.

TABLE ?
Operations Requiring Use of Seasonal Labor and Times of Weeds by Crops
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		April 20-80 == 80 per cent of	-ario d) Surakow	
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6.5 aares	1	ваечов	Ag Burgaous	
		June 1-30 am 90 per sent of	bred	
4		6359405	1	
	08	July 1-51 90 per cent of		
	1 - 11 - 1	doronge		
		August two-thirds of asrenge		
,		September two-thirds of		
		agrance		
1		October two-thirds of agre-		
	1	900 !		•
;		May 20 per cent of job	Stanking (time	
	1	June 20 per cent of joh	thirds of	
S.5 tons	ga Z	dot to thee red OS Vivle	(dogo	
SHOT ONC	1	August 13 per cent of job		
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		det le inec reg al redeset		
	1	dot to then req 03 gal		
	4	June 20 per cent, of job.	(doze to palut .	The Barrier
0		July 20 per cont of joh		
acros C.C.	95 95	August 18 per cent of job		
		September 18 per cent of job		
	-	October 18 per cent of job		
	oor (May two-chirds of job	Chopping	Cotton
Beton das:	004	dot lo brids-one east		
		June 1-30 50 per cent of	(hoed) halbest	
		parage	ing)	
neros Of,	1 200	to your the Od It-1. viul.		
1		dot lo bulit-ene viul		
	1			
	08	dot to balds-eno samuA	4 times	
		September one-third of job		
	14	September 15-30 2.2 per cent	Fieldings	
· * . *	No.	qoro lo		
250 pounds		October 1-31 36.8 per cent		
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ton .		November 1-80 34.9 per cent		
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	1	December 1-51 12.0 per cont		1
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red :		Fobruary 1-28 5.0 cer cent		

Tab	le	2	continue	d.
A 140 M	-	-	000000000	Sale a

	20020 0 00	ntinued.		-		-	4.
	Crop	Operation	Time of need	Fer c work seaso	done	by	Output per man-day
	Grain	Harvesting with combine	June 1-30 40 per cent of acreage July 1-31 40 per cent of]	75		7 acres
	Sorghums for grain	Cutting by hand	acreage August 1-15 20 per cent of acreage September 20 per cent of acreage				hours)
			October 60 per cent of acreage November 20 per cent of	}	50		0.75 acre
	Fruit and	Threshing	acreage September 15 per cent of crop October 60 per cent of crop November 25 per cent of crop	}	50		100 sacks of 130 pounds
	nut crops: Almonds	Knocking	August 15-31 one-third of crop September 1-30 two-thirds of	}	50		0.25 ton
		Hulling (by ma- chine)	crop August 15-31 one-third of crop September 1-30 two-thirds of crop	}	50		500 pounds
	Apricots	Pruning	November 15-30 5 per cent of job December 1-31 40 per cent of job January 1-31 45 per cent of job February 1-28 10 per cent of job		50		One-sixth acre
		Brush disposal	December 1-31 40 per cent of acreage January 1-31 45 per cent of acreage February 1-28 10 per cent of acreage March 1-15 5 per cent of acreage	}	50		2.5 acres
		Thinning (by hand) 50 per cent of acre- age	April 15-30 all of job	Ş	90		0.2 acre
		Picking Cutting for	June 24-30 one-third of crop July 1-10 two-thirds of crop June 24-30 one-third of job July 1-10 two-thirds of job	3	00		1,750 pounds 750 pounds
-							

		. nountinon S alder				
Output par	for cont of work dens by seasonal help	been to smit	Operation	Crop		
		June 1-30 40 per dent of	Harvesting with	Grain		
7 agres (in 12 hours)	7 76	To dres ter Ob IS-1 viste egoeros To dres ter OS 81-1 respub				
		Sortonge 20 per cent of				
ome dv.0	03 <	October 80 per cent of cere- ace November 20 per cent of				
indena 001	5 80	soreage September 15 per cent of crop	I putdoutell			
pounds		Ostober 60 per cent of crop November 25 per cent of crop		bas sium sage orogen		
0.25 ton	08 (August 18-31 one-third of drop Suptember 1-30 two-thirds of	Knoeklag			
*	03 [qoro August 15-81 one-third of qoro	Hulling (by ma- chine)			
	-	September 1-30 two-thirds of erop erop November 15-30 5 per cent of	Fruning			
One-sixth	08	job December 1-31 40 por cent of job Johnsory 1-31 45 per cent of job	1			
		Robrigary 1-28 10 per cent of job Nocember 1-31 40 per cent of		,		
norms 3.5	60	edrenge January 1-21 45 per cent of . oursage				
		Fubruary 1-26 10 per cent of nerenge Murch 1-15 5 per dent of neresge				
and S.O	00	dot to lin OB-31 lityA	Thiming (by head) 50 per cent of derce			
Townse	001 {	June 24-30 one-third of crop				
750 pounde.	oor (dol 20 ethird of job				

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Crop	Operation	Time of need	work done by seasonal help	Output per man-day
Apricots (cont.)	Other dry yard work Ficking up for	June 24-30 one-third of job July 1-15 two-thirds of job	וויי	ll man- hours per fresh ton
Figs	drying (all varieties)	August 15-31 one-third of crop September 1-30 two-thirds	100	0.25 ton
Grapes	Drying, fumigating, sorting, etc. Pruning	job September 1-30 three- fourths of job December 15-31 20 por cent	\$ 80	40 man- hours per dry ton
	Thompson, Sultana, and Zante	of acreage January 1-31 40 per cent of acreage February 1-28 30 per cent of acreage March 1-15 10 per cent of	90	0.5 acre
	Wrapping (or tying) Thompson, Sultana, and Zante	acreage Decembor 15-31 15 per cent of job January 1-31 40 per cent of job February 1-28 30 per cent of job March 1-15 15 per cent of	50	1.5 acres
	Fruning (other varieties)	job December 15-31 20 per cent of acreage January 1-31 40 per cent of acreage February 1-28 30 per cent of acreage March 1-15 10 per cent of	90	0.66 acre
	Burning brush	acreage January 1-31 40 per cent of job February 1-28 40 per cent of job March 1-15 20 per cent of	50	5.0 acres
	Hoeing and suckering (shovelling) wine varieties	job April one-third of job May one-third of job June one-third of job	90	Total of 10 hours per acre
	Picking for raisins	August 20-31 50 per cent of job September 1-15 50 per cent of job] 100	150 trays (22 pounds fresh
	Turning trays	September 1-30 75 per cent of job October 1-10 25 per cent of job	90	weight) 1,500 trays

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Table

Crop	Operation	Time of need	Fer cent of work done by	Output per
			seasonal help	man-day
Grapes (cont.)	Rolling trays	September 10-30 50 per cent of job October 1-31 50 per cent of job	} 75	1,500 trays
	Boxing and hauling	September 15-30 one-third of crop October 1-31 two-thirds of	50	5,000 pounds (dry
	Ficking for wineries	crop August 20-31 10 per cent of crop September 1-30 40 per cent of crop	100	weight)
	Picking for	October 1-31 40 per cent of crop November 1-30 10 per cent of crop August 15-31 3 per cent of		
	shipping	job September 1-30 33 per cent of job October 1-31 58 per cent of job November 1-30 6 per cent of	100	1,500 pounds
Olives	Picking for pickling	job September 15-30 15 per cent of job October 1-31 60 per cent of job November 1-21 25 per cent	100	400 pounds
Peaches	Picking for oil Pruning	of job December 25 per cent of job January 50 per cent of job February 25 per cent of job November 15-30 5 per cent of	} 100	500 pounds
(includ- ing nec- tarines)	T T WILLIE	acreage December 1-31 40 per cent of acreage January 1-31 45 per cent of acreage February 1-28 10 per cent of acreage	50	One-sixth acre (15 trees)
	Brush burning	December 1-31 40 per cent of acreage January 1-31 45 per cent of acreage February 1-28 10 per cent of acreage March 1-15 5 per cent of	50	2.5 acres
	Thinning clingstones (by hand)	acreage May 1-31 65 per cent of job June 1-30 35 per cent of job	90	One-sixth acre (15 trees)

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Table 2 co	ontinued.			7.
Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Peaches (cont.)	Thinning freestones	May 1-31 all of acreage	90	3 acres
	(with poles) Ficking clingstones (including sorting)	August 5-31 85 per cent of crop September 1-5 15 per cent of crop	} 100	2,000 pounds
	Picking freestones (for drying) 70 per cent of	July 24-31 20 per cent of crop August 1-31 80 per cent of	} 100	2,000 pounds
	crop Cutting free- stones for drying	July 24-31 20 per cent of crop August 1-31 80 per cent of crop	90	2,000 pounds
	Other dry-yard work	July 24-31 15 per cent of job August 1-31 65 per cent of job September 1-10 20 per cent	50	11.5 man- hours per fresh ton
	Picking free- stones for fresh use (30 per cent of crop)	of job August 1-31 50 per cent of job September 1-30 50 per cent of job	} 100	1,200 pounds
Plums	Fruning	December 1-31 50 per cent of acreage January 1-31 50 per cent of	50	0.25 acre
	Thinning (by hand)	acreage April 15-30 all of acreage	100	One- seventh
	Picking	June 23-30 all of crop	100	acre 800 pounds

^{*} Cotton picking by months based on Cotton Production in the United States
-- Crop of 1935. U.S. Department of Commerce, Bureau of the Census.

† From Christie, A. W. and L. C. Barnard. The principles and practice of sun-drying fruit. California Agr. Exp. Sta. Bul. 388:40-60. 1925.

Findings of Seasonal Labor Needs. -- Details and summaries of seasonal labor requirements of Madera County agriculture are presented as table 3. The "size of task" are figures drawn from table 1, in terms of either acreage or output in tons, crates, boxes, or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output figured in crates, hampers, boxes, or other units as indicated in the table. If the work is of a nature that requires a crew, different members of which perform different tasks, then the average shown is per man based on the entire crew. Length of day is 9 hours, November to February; 10 hours, March to October; unless otherwise stated. Wide variations in output occur between farm and farm, field and field, and season and season, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the

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amount of work that a laborer can perform in a given day. Moreover, the basis of output is a mature, experienced male worker without reference to use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as transplanting, thinning, weeding, and cutting, and (b) available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor (in man-days) remains the same.

TABLE 3

Seasonal Labor Needs -- Madera County -- by Months and Tasks

	T		Output per	Required	Available	Required number of
	0	Size of task	man-day	man-days		workers*
Month	Crop and task	Size of task	man-uay	High-days	days	WOIRCIS
January	Cotton: Picking	36,735 cwt.	200 pounds	18,368	20	919
o dilidal j	Apricots: Pruning	214 acres t	0.17 acre	1,259	20	63
	Brush disposal	214 acres T	2.5 acres	86	20	5
	Grapes Thompson, Sultana, Zante: Pruning	4,336 acres+	0.5 acre	8,732	20	437
	Wrapping or tying	2,426 acres+	1.5 acres	1,618	20	81.
	Other varieties: Pruning	1,310 acres+	0.66 acre	1,985	20	100
	All varieties: Brush burning	3,154 acrest	5.0 acres	631	20	32
	Olives: Picking for oil	35 tons	500 pounds	140	20	7
	Peaches and nectarines: Pruning	319 acrest	0.17 acre	1,877	20	94
	Brush burning	319 acrest	2.5 acres	128	20	7
	Plums: Pruning	51 acres	0.25 acre	204	20	11
				35,028	20	1.752 man-months 7
February	Cotton: Picking	19,140 cwt.	200 pounds	9,570	21	456
	Apricots: Pruning	48 acres T	0.17 acre	283	21	14
	Brush disposal	48 acres t	2.5 acres	20	21	1
	Grapes Thompson, Sultana, Zante: Pruning	3,275 acres +	0.5 acre	6,550	21	312
	Wrapping or tying	1,819 acres +	1.5 acres	1,213	21	58
	Other varieties: Pruning	982 acres t	0.66 acre	1,488	21	71
	All varieties: Brush burning	3.153 acres+	5.0 acres	631	21	31
	Olives: Picking for oil	17 tons	500 pounds	68	21	4
	Peaches and nectarines: Pruning	71 acres T	0.17 acre	418	21	20
	Brush burning	71 acres t	2.5 acres	29	21	2
				20,270	21	966 man-months #
March	Apricots: Brush disposal	24 acres †	2.5 acres	10	10	1 (From 1-15)
	Grapes Thompson, Sultana, Zante: Pruning	1,092 acres+	0.5 acre	2,184	10	219 (From 1-15)
	Wrapping or tying	910 acrest	1.5 acres	607	10	61 (From 1-15)
	Other varieties: Pruning	328 acres+	0.66 acre	497	10	50 (From 1-15)
	All varieties: Brush burning	1,577 acres +	5.0 acres	316	10	32 (From 1-15)
	Peaches and nectarines: Brush burning	36 acres	2.5 acres	15	21	1
				3,629	21	173 man-months #

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Table :	ontinued.			I		
						Required number of
Month	Crop and task	Size of task	man-day	man-days	days	workers*
April	Alfalfa: Mowing	764 acres t	8 acres	96	8	12 (From 20-30)
whill	Raking	764 acres	16 acres	48	8	6
1	Shocking by hand	764 acres	6.5 acres	118	8	15
	Apricots: Thinning by hand	133 acres t	0.2 acre	665	12	50 (From 15-30)
	Grapes wine varieties: Hoeing and sucker-					· ·
	ing	901 acrest	1.0 acre	901	24	38
	Plums: Thinning by hand	206 acres	0.14 acre	1,472	12	123 (From 15-30)
	11 tuns. Intiming of name	200 40.00		3,300	24	138 man-months #
May	Alfalfa: Mowing	2,293 acres †	8 acres	287	26	12
inc.y	Raking	2,293 acres †	16 acres	144	26	6
	Shocking	2,293 acres †	6.5 acres	353	26	14
	Stacking	2,446 tons T	3.5 tons	699	26	27
	Baling	1,019 tons +	5.0 tons	204	26	8
	Cotton: Chopping	16,200 acres	2.5 acres	6,480	26	250
	Grapes wine varieties: Hoeing and sucker-					
	ing	900 acres t	1.0 acre	900	26	35
	Peaches clingstone: Thinning	302 acres t	0.17 acre	1,777	26	69
	freestone: Thinning with poles	736 acres t	3.0 acres	246	26	10
				11,090	26	427 man-months +
June	Alfalfa: Mowing	2,293 acres †	8 acres	287	26	12
	Raking	2,293 acres †	16 acres	144	26	6
	Shocking by hand	2,293 acres †	6.5 acres	353	26	14
	Stacking	2,446 tons +	3.5 tons	699	26	27
	Baling	1,019 tons +	5.0 tons	204	26	8
	Cotton: Chopping	8,100 acres	2.5 acres	3,240	26	125
	Weeding (hoeing)	12,150 acres	10 acres	1,215	26	47
	Grain: Harvesting with combine	30,060 acres +	7 acres	4,295	26	166
	Apricots: Picking	458 tons 9	1,750 pounds	524	5	105 (From 24-30)
	Cutting for drying	458 tons 9	750 pounds	1,222	5	245 (From 24-30)
	Other dry-yard work	229 tons 14	11	252	5	51 (From 24-30)
	Grapes wine varieties: Hoeing and sucker-					
	ing	900 acres †	1.0 acre	900	26	35
	Peaches clingstone: Thinning	162 acres t	0.17 acre	953	26	37 (From 23-30)
	Plums: Picking	618 tons	800 pounds	1,545	6	258 (From 23-30)
				15,833	26	609 man-months #

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Month Grop and task Size of task man-day man-days days workers*	Table 3	ontinued.				1	D
Month) -		
Raking R	Month	Crop and task	Size of task	man-day	man-days	days	workers-
Raking R			L.		505	0.0	2.0
Raking Shocking by hand Stecking Shocking by hand Stecking Shocking by hand Stecking Stecking	July	Alfalfa: Mowing		1	1		
Shocking by head Stocking Baling Cotton: Weeding (hoeing) 12,150 acress 5.0 tons 204 26		Raking		1	1	Į.	
Steaming	ì	Shocking by hand		1			
Saling Cotton: Waeding (hoeing) 12,150 acres 10 acres 1,215 26 47		Stacking					
Restrict Research		Baling					
Irrigeting 12,150 acres**f 5 acres 3,240 26 125		Cotton: Weeding (hoeing)				1	
Grain: Harvesting by combine 30,080 acres 7 acres 4,295 26 166 1750 pounds 1,047 8 131 (From 1-10) 130 130 (From 1-10) 130 130 (From 1-10) 130 130 (From 1-10)			12,150 acres**T			1	
Apricots: Picking Cutting for drying Other dry-yard labor Peaches freestone: Picking for drying Gutting for drying Cutting for shipping Cutting for drying Cutting for shipping Cutting for drying C			30,060 acres T	7 acres o		1	
Cutting for drying Other dry-yerd labor Peaches freestone: Picking for drying Cutting for drying Other dry-yerd work August Alfalfa: Mowing Raking Shocking by hand Stacking Baling Cotton: Irrigating Grein: Harvesting by combine Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Ficking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yerd work Alfalfa: Mowing Raking Alfalfa: Mowing Raking Shocking by hand Stacking Baling Cotton: Irrigating Grein: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking for raisins Ficking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for			916 tons 4	1,750 pounds	1,047	8	
Other dry-yard labor Peaches freestone: Picking for drying Cutting for drying Other dry-yard work August Alfalfa: Mowing Raking Shocking by hand Stacking Baling Cotton: Irrigating Grein: Hervesting by combine Almonds: Knocking Hulling (by mechine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) Freestone: Picking for drying Cutting for drying C			916 tons 4	750 pounds	2,443		
Peaches freestone: Picking for drying Cutting for drying Other dry-yard work			458 tons 14	1 11	504	13	
Cutting for drying			560 tons	1.0 ton	560	6	
August Alfalfa: Mowing Raking Shocking by hand Stacking Baling Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) Freestone: Picking for drying Cutting f			504 tons †	1.0 ton	504	6	84 (From 24-31)
August Alfalfa: Mowing Raking 1,698 acrest 16 acres 107 26 5				#	242	6	41 (From 24-31)
Raking Shocking by hand Stacking Baling Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 1,698 acrest 1,605 acres 3,240 26 125 125 125 125 125 125 125 125 125 125		outer dry your work			15,737	26	606 man-months #
Raking Shocking by hand Stacking Baling Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 1,698 acres† 16 acres 107 26 18 18 18 18 18 107 26 11 18 18 18 18 18 18 18 18 18 18 18 18	August	Alfolfo: Mowing	1.698 acrest	8 acres	213	26	9
Shocking by hand Stacking Baling Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Other dry-yard work 1,698 acres 6.5 acres 262 26 18 1,590 tons 455 26 18 1,590 tons 5.0 tons 133 26 6 1,590 tons 150 tons 133 26 6 1,590 tons 133 26 6 1,590 tons 150 tons 32 13 1,590 tons 150 tons 32 30 1,500 acres 3,240 26 125 1,500 tons 32 13 3 1,590 tons 1,500 tons 1,500 tons 1,500 pounds	August		1	16 acres	107	26	5
Stacking Baling Cotton: Irrigating Cotton: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Ficking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) Freestone: Picking for drying Other dry-yard work Stacking 1,590 tons † 3.5 tons 3.6 tons 3.6 tons 3.7			1	6.5 acres	262	26	11
Baling Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for wineries Picking for shipping Peaches - clingstone: Picking (including sorting) freestone: Picking for drying Other dryyard work Baling Cottons † 12,150 acres** † 5.0 tons 5.0 acres 5.0 acres 7 acres © 2,148 13 3,240 26 125 125 126 127 126 127 12,150 acres** † 10.25 ton 32,240 33 13 3 (From 15-3) 35 tons 32,240 36 127 128 129 120 120 120 120 120 120 120 120 120 120					455	26	18
Cotton: Irrigating Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 12,150 acres**† 15,030 acres* 7 acres of 2,148 13 30 (From 1-15 32 32 33 40 26 125 166 (From 1-15 32 32 31 33 40 26 2,148 13 34 67 67 67 67 68 50 62 50 50 50 50 62 50 62 50 62 63 64 65 66 67 68 68 68 68 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60				1	133	26	6
Grain: Harvesting by combine Almonds: Knocking Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 15,030 acrest 7 acres 9 2,148 13 3 (From 1-15 3 (From 15-3) 3 tons 0.25 ton 132 13 11 (From 15-3) 12 (From 15-3) 13 (From 15-3) 14 (From 20-3) 15 (From 20-3) 15 (From 20-3) 15 (From 20-3) 15 (From 20-3) 16 (From 1-5) 17 (From 15-3) 18 tons 19 (From 15-3) 19 (From 20-3) 19 (From 5-3) 10 ton					•	26	125
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Hulling (by machine) Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 8 tons † 9 tons † 8 tons † 9	1						1
Figs: Picking up for drying Drying, sorting, fumigating, etc. Grapes: Picking for raisins Picking for wineries Picking for shipping Peaches clingstone: Picking (including sorting) freestone: Picking for drying Cutting for drying Other dry-yard work 33 tons 20 tons † 20 tons † 20 tons † 35 tons † 20 tons † 36 tons † 37 (From 15-3) 18 tons † 38 tons † 39 tons † 30 tons † 30 tons † 30 tons † 30 tons † 31 tons † 32 tons † 33 tons † 30 tons † 31 tons † 32 tons † 33 tons † 30 tons † 31 tons † 32 tons † 33 tons † 30 tons † 31 tons † 32 tons † 35 tons † 36 tons † 37 (From 15-3) 38 tons † 38					1	1	1
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Table 3	continued.			n	0 22-27-	D
4						Required Number of
Month	Crop and task	Size of task	man-day	man-days	days	workers*
September	Alfalfa: Mowing	1,698 acres 7	8 acres	213	26	9
	Raking	1,698 acres T	16 acres	107	26	5
	Shocking by hand	1,698 acres †	6.5 acres	262	26	11
	Stacking	1,590 tons t	3.5 tons	455	26	18
	Baling	662 tons t	5 tons	133	26	6
Ì	Cotton: Irrigating	12,150 acres***	5.0 acres	3,240	26	125
	Picking	7,574 cwt.++	250 pounds	3,030	13	234 (From 15-30)
	Sorghum for grain: Cutting by hand	76 acres t	0.75 acre	102	26	4
1	Threshing	658 sacks †	100 sacks	7	26	1
	Almonds: Knocking	16 tons †	0.25 ton	64	26	3
	Hulling (by machine)	16 tons t	0.25 ton	64	26	3
	Figs: Picking up for drying	67 tons	0.25 ton	268	26	11
	Drying, sorting, fumigating, etc.	60 tons t	11	240	26	10
	Grapes: Picking for raisins	8,520 tons	150 trays	5,164	13	398 (From 1-15)
	Picking for wineries	20,860 tons	1.0 ton	20,860	26	804
	Picking for shipping	686 tons	1,500 pounds	915	26	36
	Turning trays	15,552 tons t	1,500 trays	943	26	37
	Rolling trays	6,390 tons +	1,500 trays	388	17	23 (From 10-30)
	Boxing and hauling	710 tons †	2.5 tons	284	13	22 (From 15-30)
	Olives: Picking for canning	71 tons	400 pounds	355	13	28 (From 15-30)
	Peaches clingstone: Picking (including	-				
	sorting)	465 tons +	1.0 ton	465	4	117 (From 1-5)
	freestone: Other dry-yard work	280 tons†	11	322	8	41 (From 1-10)
	Picking for fresh use	600 tons	1,200 pounds		26	39
	TICKING TOT TIESH GSC	000 00110		38,881	26	1.496 man-months #
October	Alfalfa: Mowing	1,698 acres t	8 acres	213	23	10
OCTOBEL	Raking	1,698 acres t	16 acres	107	23	5
	Shocking by hand	1,698 acres †	6.5 acres	262	23	12
	Stacking by hand	1,590 tons +	3.5 tons	455	23	20
	Baling	662 tons †	5.0 tons	133	23	6
	Cotton: Picking	125,024 cwt.	250 pounds	50,010	23	2,175
	Sorghum for grain: Cutting by hand	228 acres †	0.75 acre	304	23	14
	Threshing	2,631 sacks t	100 sacks	27	23	2
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Table 3	continued.		0.1.1	Di mod	Arroilable	Required number of
			Output per			workers*
Month	Crop and task	Size of task	man-day	man-days	uays	WOIRCIS
October (cont.)	Grapes: Turning trays Rolling trays Boxing and hauling Picking for wineries	3,834 tons † 6,390 tons † 1,420 tons † 20,860 tons	1,500 trays 1,500 trays 2.5 tons 1.0 ton	233 388 568 20,860	8 23 23 23	30 (From 1-10) 17 25 907
	Picking for shipping	1,207 tons	1,500 pounds	1,610	23	70
	Olives: Picking for canning	284 tons	400 pounds	1,420	23	62
				76,590	23	3,330 man-months F
November	Cotton: Picking	120,204 cwt.	250 pounds	48,082	23	2,091
	Sorghum for grain: Cutting by hand Threshing	76 acres T	0.75 acre	102	23	5
		1,096 sacks†	100 sacks	11	23	1
	Apricots: Pruning	24 acres t	0.17 acre	142	23	7
	Grapes: Picking for wineries	5,215 tons	1.0 ton	5,215	23	227
	Picking for shipping	125 tons	1,500 pounds	167	23	8 (5 7 7 07)
	Olives: Picking for canning	118 tons	400 pounds	590	16	37 (From 1-21)
	Peaches and nectarines: Pruning	36 acres t	0.17 acre	212	11	20 (From 15-30)
				54,521	23	2.371 man-months 7
December	Cotton: Picking	45,930 cwt.	200 pounds	22,965	22	1,044
	Apricots: Pruning	190 acres T	0.17 acre	1,118	22	51
	Brush disposal	190 acres t	2.5 acres	76	22	4
	Grapes Thompson, Sultana, Zante: Pruning	2,183 acrest	0.5 acre	4,366	11	397 (From 15-31)
	Wrapping and tying Other varieties: Pruning	910 acrest	1.5 acres	607	11	56 (From 15-31)
		655 acrest	0.66 acre	993	11	91 (From 15-31)
	Olives: Picking for oil	17 tons	500 pounds	68	22	4
	Peaches and nectarines: Pruning	284 acres †	0.17 acre	1,671	22	76
	Brush burning	284 acres	2.5 acres	114	22	6
	Plums: Pruning	52 acres t	0.25 acre	208	22	10
				32,186	22	1,463 man-months 7

^{*} On monthly basis unless otherwise noted.

[†] Estimated portion of the job done by seasonal workers.

[‡] It should be noted that this figure, rather than representing the required number of individuals, represents the required man-months of seasonal labor, and is derived by dividing the total number of man-days by the total number of days available for work during the month.

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Table 3 continued.

- f Rate for a 12-hour day.
- 9 Fresh weight.
- ## Drying labor estimated to be as follows: Apricots 11 man-hours per fresh ton Figs 40 man-hours per dry ton Peaches 11.5 man-hours per fresh ton
- ** The total acreage is irrigated once each month, and one-third of it is irrigated twice each month.
- ## Seed cotton -- 1,350 pounds to the bale before the frost and 1,500 pounds after the frost.

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TABLE 4

Summary of Seasonal Labor Needs by Months Madera County 1935

	Required man-days	Available	Required man-months
Month	of seasonal labor	days	of seasonal labor
Townsons	35,028	20	1,752
January	20,270	21	966
February		21	173
March	3,629	24	138
April	3,300	26	427
May	11,090	26	609
June	15,833	26	606
July	15,737	1	
August	26,233	26	1,009
September	38,881	26	1,496
October	76,590	23	3,330
November	54,521	23	2,371
December	32,186	22	1,463
Total	333,298		14,340

Notes

Notes on Table 2.-- Data concerning "time of need" as shown in this table break down required seasonal labor into the period in which the work is performed in order to permit a subsequent determination of labor needs by months (table 3). Some operations are performed only to a limited extent with seasonal labor. For instance, only about 75 per cent of the labor in harvesting grain is done by seasonal workers. When a job extends over several different months, the proportionate amount for each month is shown.

The amount of work done each month is based on the cropping system followed during 1935. The allotting of amounts of work is based on findings concerning local farm practices, and required time to "make" a crop resulting from inquiry of producers, and records of carlot shipments, the latter proving helpful in fixing dates of planting and of subsequent tasks involved in producing certain crops. Froportionate amounts of output harvested each month were determined from data of local practices with respect to harvesting, and from carlot shipments of perishable products. Records of truck shipments were also used when available.

Notes on Table 3.-- Table 3 is the condensed summary of labor needs as worked out for Madera County as a result of findings pertinent to 1935. The data are presented by months with the tasks which were performed in each month indicated by both crop and task. The size of the job was calculated from the data appearing in table 1 (acreage and production) and table 2 (task, time of performance, and percentage of work pertinent to a given month). The output per man-day was calculated as indicated in the foreword presenting table 3. The number of required man-days is a result of dividing the size of task by output per man-day. The available days for the different tasks involve two variables. The first is the number of days when field work is possible because of favorable weather conditions.

The basis for this column was determined from a study of the monthly weather charts of the United States Weather Bureau for the years 1933, 1934, and 1935. These data indicated available days per month as follows (based on a 26-day working month without allowance for holidays):

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Month	Available days	Longth of work day	Month	Available days	Length of work day
		hours			hours
January	20	9	July	26	10
February	21	9	August	26	10
March	21	10	September	26	10
April	24	10	October	23	10
May	26	10	November	23	9
June	26	10	December	22	9

Source of data: Based on precipitation records of the Madera station of the United States Weather Bureau for the years 1933, 1934, and 1935.

The second factor influencing the number of available days was the size of the job. If the output was only a few cars, then the number of days was limited to the time needed to get out those cars efficiently. If a field operation had to be performed in a period less than the number of available days in the month, then the specific number of days was noted. These restrictions are shown in parentheses. For example, in July the picking of apricots was limited to the first ten days of the month, picking peaches to the last week, etc.

The totals of table 3 show the total required man-days of needed seasonal labor, the available days for field work during the month, and the necessary number of men (as defined in the opening paragraph of table 3) required on a monthly basis to care for the tasks ordinarily performed by seasonal workers.

In an area such as Madera County, involving a variety of annual crops, the findings as set forth in this report are bound to fluctuate materially from year to year, because of the market outlook upon what and how much acreage is planted, and when it is planted; because of variable seasonal conditions affecting yields, time of performing operations, and available days; and because of harvesting operations on certain crops being speeded up to supply a good market, or retarded to avoid a poor one, resulting in marked variations in the need for harvest labor.

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The totals of table 5 show the total required man-days of needed seasons labor, the available days for field work during the month, and the necessary number of mon (as defined in the opening paragraph of table 3) required on a monthly besis to care for the tasks ordinarily performed by seasonal workers.

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